Bouché, in Costa Rica, the seeds were found to remain dormant in the soil until a gap was formed in the canopy (Murray, Ecological Monographs 58(4):271–298, 1988). In addition, an experiment with *P. americana* L., another closely related taxon, showed that seeds buried in the soil for 39 years had a germination rate of 86%; this was 12% higher than seeds buried for a single year (Toole, Journal Agricultural Research 72:201–210, 1946).

It is well known that chaparral is a fire-dependent plant community. In southeastern Arizona this community is mostly confined to the Coronado National Forest, a series of disjunct, sky-island forests surrounded by desert and grassland habitats. In the Santa Catalina Mountains, lightning-initiated fires are frequent during the summer rainy season, and such fires are recognized as part of the natural environment (Whittaker & Niering, Ecology 46:429–452, 1965).

The Santa Catalina Mountains, located north of the city of Tucson, are heavily used for recreation. However, the ruggedness of the terrain, characterized by rock escarpments and steep slopes, makes many areas accessible only with great difficulty. Although crossed with trails, the range has few roads and there remain large expanses of isolated, pristine areas. It was in such an area that *P. icosandra* was encountered. The population consisted of about two dozen individuals restricted to a single ridge 300–620 m above the nearest trail and more than 4 km (airline) from the nearest road.

Phytolacca berries are relished by birds, and whether southeastern Arizona's isolated outposts are the result of bird dispersal from populations to the south or whether they represent relicts of a once more northerly distribution is uncertain. In my opinion, human introduction can be ruled out because of the isolation of the plants in the Santa Catalina Mountains, and because of the specimens collected more than 50 years ago from a population disjunct more than 100 km in the Chiricahua Mountains. The otherwise nearest record of this species is from Sonora, México, approximately 100 km south of the Arizona border (see cited specimens), and it is widespread in Sonora and much of México. The fourteen dominant plants in the chaparral of the Santa Catalina Mountains are all northern extensions of predominantly Mexican species (Shreve, Carnegie Institute Publication 217:1–112, 1915). *Phytolacca icosandra* is surely not out-of-place in this community.

Specimens Cited

USA, Arizona, Cochise County, Chiricahua National Monument, Bonita Canyon, 12 Aug 1939, *Clark 8569* (ARIZ); Cochise County, Chiricahua Mountains, Chiricahua National Monument, 1850 m, 19 Oct 1940, *Darrow s.n.* (ARIZ); Pima County, Santa Catalina Mountains, Romero Canyon, burned area, 1525 m, 15 Dec 1990, *Steinmann 229* (ARIZ). MEXICO, Sonora, region of the Río Bavispe, Rancho Cruz Díaz, pine zone, 7 Aug 1940, *Phillips 427* (GH).

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Absence of Nascent Inflorescences in *Arctostaphylos pringlei*.—Jon E. Keeley, Department of Biology, Occidental College, Los Angeles, CA 90041.

One of the defining characteristics of *Arctostaphylos* (manzanitas) is the production of inflorescences in the spring or summer, six to eight months prior to flowering (Fig. 1). Jepson (Erythea 8:97–99, 1938) was the first to point out this phenomenon and he coined the term "embryonic panicles" to describe this dormant stage in flowering. Later students of *Arctostaphylos* have replaced this with the term "nascent" inflorescence; defined as inflorescences "developing or coming into existence."

Jepson was particularly taken with these structures because he noted that, although

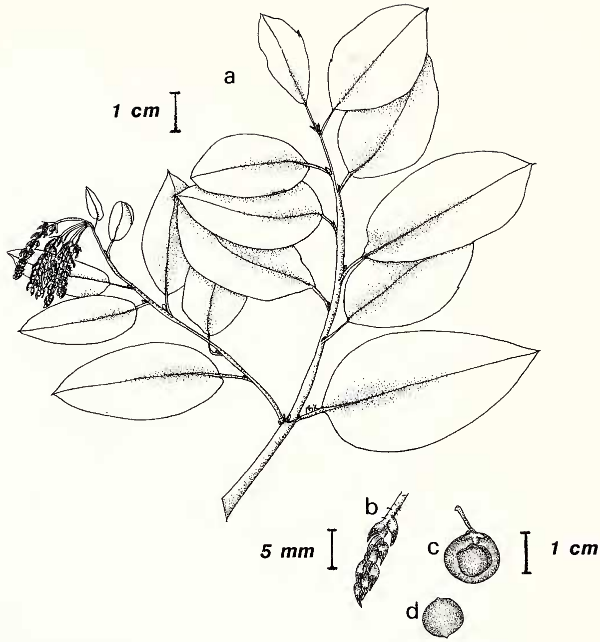

FIG. 1. a. Branchlet with dormant nascent inflorescence as it appears for 6–9 months of the year in *Arctostaphylos* species, except *A. pringlei.* b. Single branch of nascent inflorescence. c. Fruit (with solid endocarp, d) which is often present at the same time as nascent inflorescences (*Arctostaphylos rainbowensis* illustration is from Madroño 41:1–12).

flowering panicles were remarkably similar among species, "these embryonic panicles were found to be strikingly unlike." He noted numerous examples in *Arctostaphylos* where these structures were of great taxonomic importance and concluded that "it now seems probable that in all species of *Arctostaphylos* the embryonic panicles will be found to exhibit characteristics which are of importance taxonomically." Jepson's prediction has held up and today these nascent inflorescences are key characters in the taxonomy of the group, which comprises 62 recognized species, and many more subspecific forms.

I report here, after having observed over 60 species of *Arctostaphylos* in the field, that nascent inflorescences are practically ubiquitous in the genus, save one species, *A. pringlei* Parry. This is a diploid species ($n=13$, J. Keeley), widespread throughout the southwest. The conclusion of lack of nascent inflorescences in *A. pringlei* is based on numerous observations of this species in late summer throughout much of its range from Baja California and southern California. In all cases, plants lacked nascent inflorescences. This phenological pattern is apparently typical throughout the range as data from Arizona populations of *A. pringlei* also indicate a lack of inflorescence development until immediately prior to flowering (A.D.S. Harlan, Ph.D. dissertation, University of Arizona, Tucson, 1977).

In addition to these observations, more detailed field study was made on two populations of this species from June 1992 through April 1993. One of the two populations was near Angelus Oaks (1725 m) in the San Bernardino Mtns (San Bernardino Co.) and the other at 2000 m in the Santa Rosa Mtns (Riverside Co.).

Populations were visited at irregular intervals up through the end of autumn (December 1992). During this period no nascent inflorescences were produced. In late autumn the axillary buds at the tips of new growth, which will give rise to flowering panicles the following spring, were swollen. These buds appeared to be entirely vegetative as hand sections of these buds, examined under 30× magnification, did not reveal any floral structures.

Populations were visited again in April 1993 and shrubs were in the initial stages of flowering. On the same shrub all stages of inflorescence development were evident, from dormant apical and axillary buds just breaking dormancy, to barely visible embryonic panicles and all stages of inflorescence development through to flowering. These flowering panicles arose from meristems on the old growth from the previous year, as is the case in other *Arctostaphylos* species.

Clearly, *A. pringlei* is set apart from the rest of *Arctostaphylos* in the lack of nascent inflorescence production. Outside the genus clearly evident nascent inflorescences are of limited distribution in the Ericaceae, although early floral development in the growing season prior to flowering is apparently widespread in the family (H. P. Bell and J. Burchill, Canadian Journal of Botany 33:547–561, 1955). *Arctostaphylos* is the largest of six genera within the subfamily Arbutoideae. The two most closely related genera, *Ornithostaphylos* and *Xylococcus* (indeed, older taxonomic treatments subsumed them in *Arctostaphylos*), produce nascent inflorescences in the year prior to flowering, as in *Arctostaphylos* (minus *A. pringlei*). *Comarostaphylis* and *Arctous* lack nascent inflorescences, as do North American *Arbutus* species; however the European *Arbutus unedo* does produce *Arctostaphylos*-like nascents (Keeley unpublished field and herbarium observations).

This profound phenological difference between *A. pringlei* and the rest of the genus sets this species apart and is consistent with other attributes. For example, Wells (Four Seasons 9(2):64–69, 1992) was so impressed with the uniqueness of *A. pringlei* that he erected a third section within subgenus *Arctostaphylos* for this species alone. The section, *Pictobracteata* Wells, is distinguished by large membraneous floral bracts, and the phenological observations reported here support its distinction from the rest of the genus.

A NEW CHROMOSOME NUMBER FOR *SAXIFRAGA CALIFORNICA* (SAXIFRAGACEAE) WITH IMPLICATIONS FOR ITS RELATIONSHIPS.—John F. Gaskin and Patrick E. Elvander, Department of Biology, University of California, Santa Cruz, CA 95064.

Saxifraga californica Greene and *Saxifraga fallax* Greene (Saxifragaceae) were treated as separate species by Munz (*A California Flora*, University of California Press, 1965). Elvander (Systematic Botany Monographs, 3:1–44, 1984) combined the two taxa into one species, *S. californica.* A study exploring the justification of Elvander's incorporation of these two species into one found no consistent or significant morphological differences between herbarium specimens (UC, JEPS) which were previously classified as *S. fallax* and herbarium specimens which were always classified as *S. californica.* During the study, buds were collected from a population (*Gaskin* 003, UCSC) that had previously been identified as *S. fallax* from the Sierra foothills and one (*Gaskin* 002, UCSC) that had always been identified as *S. californica* from the Coast Range of California. A consistent haploid chromosome number of $n=10$ was found for these specimens. This is the first chromosome number report for this species. It gives new insight into the relationship of *S. californica* to other members of the genus and supports the morphological conclusion that there is only one species.

The relationships of *S. californica* to other species in the section *Boraphila* series *Integrifoliae* have been difficult to determine since *S. californica* has morphological characters representative of both the *S. rhomboidea* (Greene) complex, representing